# CBSE

COORDINATE GEOMETRY WS 4

Class 10 - Mathematics

1. If a point A (0, 2) is equidistant from the points B(3, p) and C(p, 5), then find the value of p. **[2]**

2. Find the distance between the points (0, 0) and (36, 15). **[2]**

3. Find the distance between the points (0, 0) and (36, 15). Also, find the distance between towns A and B if town B is located at 36 km east and 15 km north of town A. (In km) **[2]**

4. Find a point on y-axis which is equidistant from the points (5, -2) and (-3, 2). **[2]**

5. Find the distance of A(5, -12) points from the origin. **[2]**

6. Match the following: **[2]**

| (a) The point lies above the x-axis	(i) (0, 3)
(b) The point lies on the x-axis	(ii) (-1, 2)
(c) The point lies on y-axis	(iii) (3, 5)
(d) The point lies to the right of the y-axis	(iv) (2, 0)

7. Find the fourth vertex of a rectangle whose three vertices taken in order are (4, 1), (7, 4) and (13, -2). **[2]**

8. Find the points on the x-axis, each of which is at a distance of 10 units from the point A(11, -8). **[2]**

9. Point P(x, y) is equidistant from the points A(5, 1) and B(1, 5), prove that x = y. **[2]**

10. Name the type of triangle PQR formed by the points P ($\sqrt{2}, \sqrt{2}$), Q ($-\sqrt{2}, -\sqrt{2}$) and R ($-\sqrt{6}, \sqrt{6}$). **[2]**

11. Find the value of a, if the distance between the points A (-3, -14) and B (a, -5) is 9 units. **[2]**

12. If A(4, 3), B (-1, y), and C(3, 4) are the vertices of a right triangle ABC, right angled at A, then find the value of y. **[2]**

13. Find a point on the y-axis which is equidistant from the points A(6, 5) and B (- 4, 3). **[2]**

14. Find the values of x for which the distance between the points P(x, 4) and Q(9,10) is 10 units. **[2]**

15. Find the point on x-axis which is equidistant from the points (–2, 5) and (2, – 3). **[2]**

16. What is the distance between the points (5 sin 60°, 0) and (0, 5 sin 30°)? **[2]**

17. If the distance between points (x, 0) and (0,3) is 5, what are the values of x? **[2]**

18. Name the type of quadrilateral formed, if any, by the points (4, 5), (7, 6), (4, 3), (1, 2), and give a reason for your answer. **[2]**

19. Find the distance between the points A (7,13) and B(10,9). **[2]**

20. Show that the points (-2, 3), (8, 3) and (6, 7) are the vertices of a right-angled triangle. **[2]**

21. Prove that the points A(-1, 0), B(3, 1), C(2, 2) and D(-2, 1) are the vertices of a parallelogram ABCD. Is it also a rectangle? **[2]**

22. The base PQ of two equilateral triangles PQR and PQR' with side '2a' lies along y-axis such that the mid-point of PQ is at the origin. Find the coordinates of the vertices R and R' of the triangles. **[2]**

23. Find the relation between x and y such that the point (x, y) is equidistant from the points (7, 1) and (3, 5). **[2]**

24. Find a relation between x and y such that the point (x, y) is equidistant from the point (3, 6) and (-3, 4). **[2]**

25. Check whether the points (20, 3), (19, 8) and (2, –9) are all equidistant from the point (7, 3). **[2]**

26. If Q(0, 1) is equidistant from P(5, -3) and R(x, 6), find the values of x. **[2]**

27. If Q(0, 1) is equidistant from P(5, -3) and R(x, 6), find the values of x. Also find the distances QR and PR. **[2]**

28. Check whether the points P(5, -2), Q(6, 4) and R(7, -2) are the vertices of an isosceles triangle PQR. **[2]**

29. Find the values of x for which the distance between the points A(x, 2) and B(9, 8) is 10 units. **[2]**

30. Show that the points A (1,- 2), B (3, 6), C (5, 10) and D (3, 2) are the vertices of a parallelogram. **[2]**

31. Find the point on x-axis which is equidistant from the points (5, -2) and(-3,2). **[2]**

32. A(– 2, 2), B(5, 2) and C(k, 8) are the vertices of a right-angled triangle ABC with $\angle B = 90°$, then find the value of k. **[2]**

33. Find the distance between the points (0, 0) and (36, 15). Also, find the distance between towns A and B if town B is located at 36 km east and 15 km north of town A. **[2]**

34. Find the distance of the point P(6, -6) from the origin. **[2]**

35. Find the distance between the points: **[2]**

   A(-6, -4) and B(9, -12)

36. Two vertices of a $\triangle$ABC are given by A(6, 4) and B(-2, 2), and its centroid is G(3,4). Find the coordinates of the third vertex C of $\triangle$ABC. **[2]**

37. Find the perimeter of a triangle with vertices (0,0),(1,0) and (0,1). **[2]**

38. Find the value(s) of **x** so that PQ = QR, where the coordinates of P, Q and R are (6, -1), (1, 3) and (x, 8) respectively. **[2]**

39. If P(x, y) is a point equidistant from the points A(6, -1) and B(2, 3), show that x - y = 3. **[2]**

40. Do the points (3, 2), (–2, –3) and (2, 3) form a triangle? If so, name the type of triangle formed. **[2]**

41. Find the values of y for which the distance between the points P (2, -3) and Q (10, y) is 10 units. **[2]**

42. Krishna has an apple orchard which has a 10 m $\times$ 10 m sized kitchen garden attached to it. She divides it into a 10×10 grid and puts soil and manure into it. She grows a lemon plant at A, a coriander plant at B, an onion plant at C and a tomato plant at D. Her husband Ram praised her kitchen garden and points out that on joining A, B, C and D they may form a parallelogram. Look at the below figure carefully and answer the following questions: **[2]**
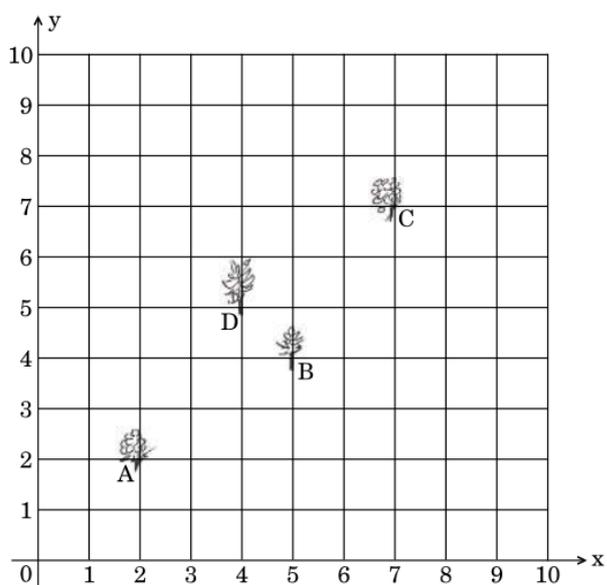

   i. Write the coordinates of the points A, B, C, and D, using the 10×10 grid as coordinate axes.

   ii. Find whether ABCD is a parallelogram or not

43. Find the value(s) of y for which the distance between the points A(3, -1) and B(11, y) is 10 units. **[2]**

44. Find all possible values of x for which the distance between the points A(x, -1) and B(5, 3) is 5 units. **[2]**

45.   Find a relation between x and y such that the point (x, y) is equidistant from the points (7, 1) and (3, 5).   **[2]**

46.   Find the distance between the points: **[2]**

P(a sin α, a cos α,) and Q(a cos α, - a sin α)

47.   In a classroom, 4 friends are seated at the four points A, B, C and D as shown in Fig. Champa and Chameli walk   **[2]**
into the class and after observing for a few minutes Champa asks Chameli, Don't you think ABCD is a square?
Chameli disagrees. Using distance formula, find which of them is correct.
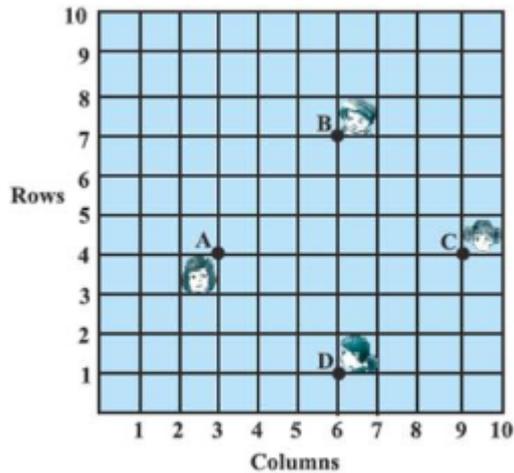

48.   Determine if the points (1, 5), (2, 3) and (-2, -11) are collinear.   **[2]**

49.   Find the distance between the pair of points (a, b), (-a, -b)   **[2]**

50.   Prove that in a right-angled triangle, the mid-point of the hypotenuse is equidistant from the vertices.   **[2]**

51.   Prove that points (0,0), (5,5) and (-5,5) are vertices of a right-angled isosceles triangle.   **[2]**

52.   The points A (2, 0), B (9, 1), C (11, 6) and D (4, 4) are the vertices of a quadrilateral ABCD. Determine whether   **[2]**
ABCD is a rhombus or not.

53.   In the given figure, in $\triangle$ABC points D and E are mid-points of sides BC and AC respectively. If given vertices   **[2]**
are A(4, -2), B(2, -2) and C(-6, -7), then verify the result DE = $\frac{1}{2}$ AB.
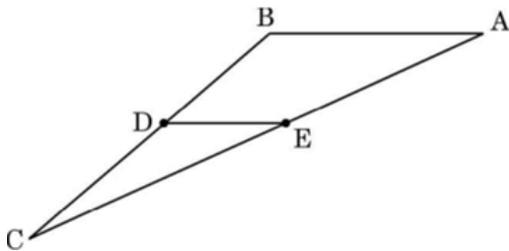
54.   Find the distance of C(-4, -6) points from the origin.   **[2]**

55.   Find the lengths of the medians AD and BE of $\triangle$ABC whose vertices are A(7, -3), B(5, 3) and C(3, -1).   **[2]**

56.   Find the distance between the points (0, 0) and (36, 15).   **[2]**

57.   If A(3, y) is equidistant from points P(8, -3) and Q(7, 6), find the value of y and find the distance AQ.   **[2]**

58.   Check whether (5, –2), (6, 4) and (7, –2) are the vertices of an isosceles triangle.   **[2]**

59.   Find the distance between the points: **[2]**

A(7, -4) and B(-5, 1).

60.   If the distance between the points (3, 0) and (0, y) is 5 units and y is positive, then what is the value of y?   **[2]**

61.   Write the perimeter of the triangle formed by the points O (0,0), A (a, 0) and B (0, b).   **[2]**

62.   Find the distance between the points $A\left(at_1^2, 2at_1\right)$ and $B\left(at_2^2, 2at_2\right)$ **[2]**

63.   Determine, by distance formula, whether the given points are collinear : (1, 2), (5, 3) and (18, 6).   **[2]**

64.   Use analytical geometry to prove that the mid-point of the hypotenuse of a right-angled triangle is equidistant   **[2]**
from its vertices.

65. In the figure, the arrangement of desks in a classroom is shown. Ashima, Bharti, and Asha are seated at A, B, and C respectively. Answer the following: **[2]**

   i. Find whether the girls are sitting in a line.

   ii. If A, B, and C are collinear, find the ratio in which point B divides the line segment joining A and C.
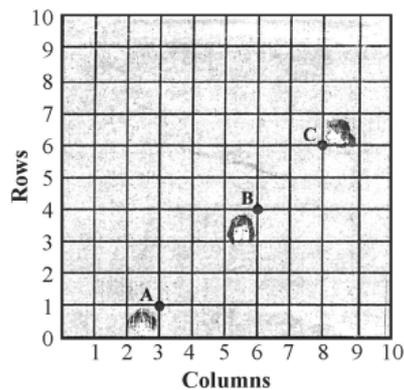
66. AOBC is a rectangle whose three vertices are A(0,3), 0(0, 0) and B(5, 0). Find the length of its diagonal. **[2]**

67. If a point A (0,2) is equidistant from the points B(3,p) and C(p, 5), then find the value of p. **[2]**

68. Show that the points (7, 10), (-2, 5) and (3, - 4) are the vertices of an isosceles right triangle. **[2]**

69. Find the point on the x-axis which is equidistant from (2, -5) and (-2, 9). **[2]**

70. If the points A(-1, y) and B(5, 7) lie on a circle with centre O(2, -3y), then find the values of y. **[2]**

71. Show that A(-3, 2), B(-5, -5), C(2, - 3) and D(4, 4) are the vertices of a rhombus. **[2]**

72. Seema has a 10 m × 10 m kitchen garden attached to her kitchen. She divides it into a 10 × 10 grid and wants to grow some vegetables and herbs used in the kitchen. She puts some soil and manure in that and sows a green chilly plant at A, a coriander plant at B and a tomato plant at C. **[2]**

Her friend Kusum visited the garden and praised the plants grown there. She pointed out that they seem to be in a straight line. See the below diagram carefully and answer the following questions :
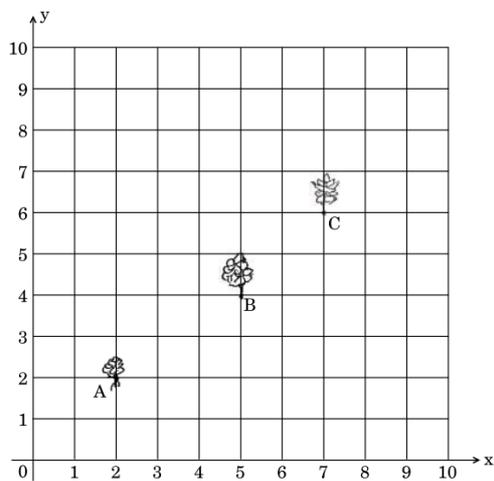
   i. Write the coordinates of the points A, B, and C taking the 10 × 10 grid as coordinate axes.

   ii. By distance formula or some other formula, check whether the points are collinear.

73. Determine whether the given points are vertices of a right triangle: (–2, 1), (2 –2), and (5, 2) **[2]**

74. If the points (2, 1) and (1,-2) are equidistant from the point (x, y), show that x + 3y = 0. **[2]**

75. If A (–3, 2), B(p, q) and C(–1, 4) are the vertices of an isosceles triangle, show that p + q = 1, if AB = BC. **[2]**